

Cluster E IAS suggestions for G12 chemistry

		17.1 Know that transition elements typically form more than one stable ion and that they have generally similar physical and chemical properties.	17.2 Know the electronic configurations and the typical properties of the first row transition elements.	17.3 state some common uses of some transition elements, including examples of catalysis by transition metals, and relate these uses to their properties.
1.1 Identify and develop a clearly focused research question	Research question			✓
1.1 Identify and develop a clearly focused research question	Abstract			✓
1.2 Make predictions directly related to a research question		✓	✓	
3.3 Draw valid conclusions		✓	✓	✓
1.8 Identify, and make critical use of, secondary information	Literature review	✓	✓	✓
3.4 Use an appropriate range of methods to communicate scientific information		✓	✓	✓
1.6 Work in an ethical manner with regard to acknowledging data sources and authenticity of results.				✓
3.3 Draw valid conclusions	Conclusion & evaluation			✓
1.6 Work in an ethical manner with regard to acknowledging data sources and authenticity of results.	References			✓

Suggested approach:

Teach about transition metals first. Student is expected to absorb some information about the group and be able to **locate information** in the text book.

Task 1:

Given a list of transition metals, students are invited to choose a number (minimum 3?) and prompted to **formulate a question** regarding their uses, which may be answered by a literature search.

Using their existing knowledge of transition metals and their properties, students should make a **prediction** about the uses to which their chosen metals are put.

This is marked. If standard is not met, the student is given the opportunity to resubmit?

Task 2:

Student **collects information** and **writes a report** which will answer the question posed. Student acknowledges all sources.

Student presents a written report for marking. The report includes an abstract.

Student may be required to present his report orally, with opportunity for questions from class or teacher, to confirm the work as the student's own.

I	II												III	IV	V	VI	VII	VIII
H																		He
Li	Be												B	C	N	O	F	Ne
Na	Mg												Al	Si	P	S	Cl	Ar
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn		Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd		In	Sn	Sb	Te	I	Xe
Cs	Ba		Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg		Tl	Pb	Bi	Po	At	Rn
Fr	Ra		Rf	Db	Sg	Bh	Hs	Mt	Uun	Uuu	Uub							
			La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	
			Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr	